APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,452	03/31/2004	Jiewen Liu	80107.160US1	5473

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EXAMINER
LA, NICHOLAS T

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/814,452	LIU ET AL.
	Examiner	Art Unit	
	Nicholas T. La	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>28 February 2006</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-27</u> is/are pending in the application.

　　4a) Of the above claim(s) <u>2,3,5,9-11,18 and 25</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,4,6-8,19-24,26,27 and 1217</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All b) ☐ Some * c) ☐ None of:

　　　　1. ☐ Certified copies of the priority documents have been received.

　　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Response to Arguments

Applicant's arguments with respect to claims **1, 4, 6-8, 12-17, 19-24, 26-27** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1)   **Claims 1, 8, 15, 21, and 24** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant amended the claims and added "if no 802.11 compliant beacon is received, sleeping for one additional 802.11 compliant beacon interval", which is not included in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2) **Claims 1, 4, 7-8, 12-17, 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over van Bokhorst et al. (US Patent No. 6,192,230) and further in view of Romans (US Patent No. 6,665,520).

Regarding **claims 1 and 15**, van Bokhorst et al. teaches a method performed by a mobile station in a wireless network, the method comprising:

determining a power saving level for the mobile station based on an amount of data traffic as a percentage of traffic activity in a current time interval (Figure 9, 10; col. 9, 65 to col. 10, line 20);

determining, from the power saving level and a required wake up time, a number of TIM (Traffic Indicator Message) interval to sleep (Figure 6; col. 5, line 17 to col. 6, line 16);

sleeping for a number of TIM intervals (Figure 6; col. 5, line 17 to col. 6, line 16);

awaking to receive TIM message (Figure 6; col. 5, line 17 to col. 6, line 16); and

if no TIM message is received, sleeping for one additional TIM message interval (Figure 6, see 130-1, 132-1, 134-1, 136-1 indicating if there is no traffic

data to be received at the mobile stations, the stations will stay sleep for one
additional TIM message period; col. 5, line 17 to 62).

However, van Bokhorst et al. does not specifically teach a method,
wherein 802.11 compliant beacon message is used. In an analogous art,
Romans teaches a power management method of an apparatus for use in a
wireless local area network. Romans further teaches using 802.11 compliant
beacon (col. 3, line 5 to 11) determine the power management by employing
802.11 compliant beacon (col. 3, line 37 to col. 4, line 30). Therefore, it would
have been obvious to one ordinary skilled in the art at the time of the invention
was made to modify van Bokhorst et al. to include 802.11 compliant beacon in
order to minimize the time when such the time the device has to be fully power
up and maximize the time the mobile station could power down to save power in
accordance to IEEE 802.11 standard.

Regarding **claims 8 and 21**, van Bokhorst et al. further teaches a method
comprising:

determining a desired sleep interval as a number of TIM intervals (see
Figure 6, col. 5, line 29 to col. 6, line 9) to sleep to save power (col. 4, line 27 to
39), based on a volume of data traffic as a percentage of a current time interval
(col. 9, line 65 to col. 10, line 20);

determining a broadcast time to wakeup to receive packets from an
access point (col. 4, line 27 to line 52; col. 5, line 30 to 62);

setting a wake up time based on the desired sleep interval and the

broadcast time (col. 5, line 17 to 30);

sleeping until the wake up time (col. 5, line 17 to 30);

waking to receive a TIM message (col. 5, line 17 to 30);

if no TIM message is received, sleeping for one additional TIM message

interval (Figure 6, see 130-1, 132-1, 134-1, 136-1 indicating if there is no traffic

data to be received at the mobile stations, the stations will stay sleep for one

additional TIM message period; col. 5, line 17 to 62).

However, van Bokhorst et al. does not specifically teach a method,

wherein 802.11 compliant beacon message is used. In an analogous art,

Romans teaches a power management method of an apparatus for use in a

wireless local area network. Romans further teaches using 802.11 compliant

beacon (col. 3, line 5 to 11) determine the power management by employing

802.11 compliant beacon (col. 3, line 37 to col. 4, line 30). Therefore, it would

have been obvious to one ordinary skilled in the art at the time of the invention

was made to modify van Bokhorst et al. to include 802.11 compliant beacon in

order to minimize the time when such the time the device has to be fully power

up and maximize the time the mobile station could power down to save power in

accordance to IEEE 802.11 standard.

Regarding **claim 4**, Romans further teaches a method, wherein the

required wake-up time corresponds to a time to receive broadcast and multicast

packets (col. 7, line 49 to 58).

Regarding **claim 7**, Romans further teaches a method, wherein

determining a number of 802.11 compliant beacon intervals to sleep comprises

comparing a Delivery Traffic Indication Message (DTIM) count within a received

beacon with a time interval associated with the power saving level (col. 2, line 17

to 54; col. 3, line 5 to col. 4, line 30).

Regarding **claim 12**, Romans further teaches a method, wherein

determining a broadcast time comprising examining a Traffic Indication Map

element within an 802.11 compliant beacon (col. 3, line 5 to col. 4, line 30).

Regarding **claims 13, 14,** Bokhorst et al. further teaches a method,

wherein setting a wake-up time comprises setting the wake up time to the end of

one desired sleep interval when the broadcast time is more than two desired

sleep interval in the future (see Figure 6, at the end of 130-1the mobile wakes up

upon determining the broadcast time is more than two desired sleep intervals in

the future 142, 148, 152), and setting the wake-up time to the broadcast time

when the broadcast time is less than two desired sleep intervals in the future

(see Figure 6, at the end of 132-1 is also when the broadcast time starts when

the broadcast time ids less than two desired sleep intervals in the future, the

mobile wakes up to receive broadcast message).

Regarding **claims 16, 17**, van Bokhorst et al. further teaches a method, wherein evaluating traffic activity comprises determining a percentage of traffic time over a time interval and the power saving level may be set differently each time the traffic activity is evaluated (Figure 9, 10; col. 9, 65 to col. 10, line 20).

Regarding **claim 19**, Bokhorst et al. further teaches a method, wherein setting a power saving level comprises determining a number of beacon intervals for the mobile station to go to sleep (Figure 6; col. 5, line 17 to col. 6, line 16).

Regarding **claim 20**, Romans further teaches a method, wherein setting a sleep time comprises determining a number of beacon intervals for the mobile station to sleep by comparing a desired number of beacon interval with a delivery Traffic Indication Message (DTIM) count (col. 3, line 38 to col. 4, line 30; col. 6, line 14 to 32).

3) **Claims 24, 26 ,27** are rejected under 35 U.S.C. 103(a) as being unpatentable over van Bokhorst et al. (US Patent No. 6,192,230) in view of Romans (US Patent No. 6,665,520) and further in view of Ciccone (US Patent No. 6,078,819).

Regarding **claim 24**, van Bokhorst et al. further teaches an electronic system comprising:

an antenna (Figure 2; element 22);

a radio interface coupled to the antenna (Figure 2, element 30 as wireless

transceiver interface);

a processor couple to the radio interface (Figure 2, element 34); and

a static random access memory (Figure 2, element 36) with instruction

stored thereon that when accessed, result in the processor performing:

evaluating traffic activity at the radio interface, setting a power saving level

for the radio interface based on the traffic activity (Figure 6, col. 17 to col. 62),

setting sleep time associated with the power saving level (Figure 6, col. 17 to col.

62), putting the radio interface to sleep for the sleep time (Figure 6, col. 17 to col.

62), waking the radio interface to receive a beacon signal (Figure 6, col. 17 to

col. 62), and putting the radio interface back to sleep for one TIM interval if a TIM

interval signal is not received (Figure 6, see 130-1, 132-1, 134-1, 136-1 indicating

if there is no traffic data to be received at the mobile stations, the stations will

stay sleep for one additional TIM message period, col.5 line 17 to col. 62).

However, van Bokhorst et al. does not teach a system, which employs

beacon signal. In an analogous art, Romans teaches a power management

method of an apparatus for use in a wireless local area network. Romans further

teaches 802.11 compliant beacon (col. 3, line 5 to 11) and determine the power

management by employing 802.11 compliant beacon (col. 3, line 37 to col. 4, line

30). Therefore, it would have been obvious to one ordinary skilled in the art at

the time of the invention was made to modify van Bokhorst et al. to include

802.11 compliant beacon in order to minimize the time when such the time the

device has to be fully power up and maximize the time the mobile station could

power down to save power in accordance to IEEE 802.11 standard.

Van Bokhorst et al. and Romans does not exclusively teach a system

comprising a plurality of antennas. In an analogous art, Ciccone et al. teaches

an apparatus and method for prolong battery life in a portable telephone having

first and second deactivating conditions. Ciccone et al. further teaches a system

apparatus comprising a plurality of antennas (Figure 2, element 140, 145; col. 6,

line 2 to 23). Therefore, it would have been obvious to one ordinary skilled in the

art at the time of the invention was made to modify Bokhorst et al. and Romans

system to include using a plurality of antennas to allow selections of which with

the strongest signal for use or combining of signals for the purpose of providing

quality of service to system.

Regarding **claims 26, 27**, Romans further teaches an apparatus, wherein

setting a sleep time is expressed as a number of beacon interval and further

comprises determining a time interval for the apparatus to sleep by comparing a

desired sleep interval and a required wake-up time to receive multicast packets

(col. 3, line 37 to col. 4, line 30; col. 6, line 15 to 32).

4) **Claims 6, 22, 23** are rejected under 35 U.S.C. 103 (a) as being

unpatentable over van Bokhorst et al. (U.S. Patent No. 6,192,230) in view of

Romans (U.S. Patent No. 6,665,520) and further in view of Lindskog et al. (U.S.

Pub. No. US 2001/0031626).

Regarding **claim 6**, van Bokhorst et al. and Romans discloses a method determining power saving based on an amount of traffic and the time interval for the mobile station to sleep is expressed as a number of 802.11 compliant beacon interval. However, Borras and Romans do not disclose a method is performed within a beacon monitor task run in response to an interrupt caused by a Target Beacon Transmission Times (TBTT) timer.

In an analogous art, Lindskog et al. discloses a method for power status for wireless communication comprises the method is performed within a beacon monitor task run in response to an interrupt caused by a Target Beacon Transmission Times (TBTT) timer (paragraph [0032]-[0033]). Therefore, it would have been obvious for one who ordinary skill in the art at the time of the invention to modify van Bokhorst et al. and Romans method of putting the mobile unit to sleep to save power and to utilize Lindskog method of target beacon transmit time timer (TBTT) to further advance the purpose of enabling lower power consumption and avoiding "missed" pending data.

Regarding **claims 22, 23**, Lindskog et al. further teaches a apparatus comprising a mobile computer and a network interface card (see Figure 2, paragraph [0059]).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
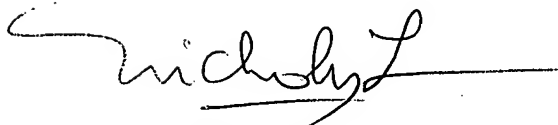
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas T. La whose telephone number is (571)-272-8075. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from
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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-
free).

Nicholas La
04/19/2006

NICK CORSARO
PRIMARY EXAMINER